

ABSTRACT OF THE DISCLOSURE

A method of manufacturing an embedded multilevel interconnection, comprising the steps of: forming a hole portion in an insulating layer; forming a barrier metal film mainly made of tantalum and nitrogen in such a manner that the barrier metal film covers at least an inner wall of the hole portion, an element composition ratio (N/Ta) of nitrogen to tantalum contained in the barrier metal film being 0.3 or higher but 1.5 or lower; removing an oxide film formed on a surface of the barrier metal film; and immersing the barrier metal film in a plating liquid comprising copper and thereby forming an electroless copper plating film on the barrier metal film.